The Calculation of Rock Analyses. — Now that so much interest centers about the chemical composition of rock magmas and the representation of their composition in terms of molecular ratios, a recent paper by Kemp[1] on the methods of calculating rock analyses in these terms will be of great use to all students of rocks. In this paper the author shows how to transform percentages into molecular proportions, and from these how to calculate the mineral composition of any given rock. The most valuable portion of the article is a series of tables in which the "molecular proportions" of each of the rock-forming oxides is indicated for its corresponding "percentage" in rock analyses.

Weathering of Granites. — The conclusions drawn by Watson[2] from the results of an interesting study of the weathering of a number of granitic rocks of Georgia are as follows: Assuming that Fe_2O_3 has remained constant, (1) the amount of water in the weathered rocks increases rapidly as decomposition advances. At the same time there is a loss of SiO_2 and of all the metallic oxides except Al_2O_2, which in some cases shows a relative increase. (2) The loss of SiO_2 is not caused by solution of the quartz of the original rocks, but is the result of the decomposition of silicates. (3) CaO and Na_2O disappeared in larger quantities than MgO and K_2O. (4) The total loss of constituents varies between 7.68 % in weathered phases to 71.82 % in thoroughly decomposed forms.

Origin of Phenocrysts in Granites. — The same author[3] has also investigated these granites with respect to the origin of their phenocrysts. He describes in detail a large number of occurrences and concludes his study in these words: "The absence of (*a*) definite arrangement or orientation among the phenocrysts; (*b*) of phenocrysts from the border zones of the massif — gradation from an interior porphyritic facies peripherally into an even granular granite of coarse texture and the same mineral and chemical composition; (*c*) the further absence of evidence of magmatic resorption or corrosion of the phenocrysts; and (*d*) the presence of abundant inclusions of all the ground-mass constituents characterizing the generally tabular phenocrysts of the Georgia porphyritic granites, fully justify the conclusion that the phenocrysts in these rocks were formed *in place*, and are not intratelluric in origin."

[1] *School of Mines Quart.*, vol. xxii, p. 75.
[2] *Bull. Geol. Soc. Amer.*, vol. xii (1901), p. 93.
[3] *Journal of Geology*, vol. ix (1901), p. 97.

The granites are found in the Piedmont plateau region. They comprise even-grained and porphyritic varieties, and granite gneisses, all of which are plainly intrusive. Each variety is clearly described by the author, who also gives analyses of many types. Averages of these analyses give the following figures:

	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O
Normal granites	69.67	16.63	1.28	.55	2.16	4.73	4.71
Porphyritic granites	69.28	16.73	1.75	.72	2.13	4.33	4.59
Granite-gneisses	73.76	14.52	1.03	.29	1.14	4.16	4.63

The normal and porphyritic phases possess the same composition. The gneisses, however, are more acid than these, while their percentages of Al_2O_3, CaO, and MgO decrease.[1]

Gneisses of the Adirondacks. — The gneisses of a portion of the Adirondacks are briefly described by Cushing[2] in a report on the geology of Franklin County, New York. They comprise granite-gneisses with the composition of hornblende-granites, and pyroxene-gneisses. The latter consist of pyroxene (augite and hypersthene), plagioclase, orthoclase, some hornblende and quartz. Intermediate gneisses composed of hornblende and andesine, with augite and hypersthene as common accessory constituents, are also present in some localities. These are identical in their features with certain hornblende-gneisses derived from gabbros, but the author is inclined to separate them from the latter as of different age. Intrusive in these gneisses and in the Grenville series of sediments which are so well represented in the district are great dykes and masses of anorthosite, gabbro, granite, diabase, and syenite porphyries. The various types of most of these rocks have been described many times. The author adds new descriptions which serve to show that the types are quite uniform over large areas. The syenite grades into granite, both rocks being regarded as differentiates of one magma. The syenites are composed essentially of orthoclase and albite or oligoclase in microperthitic intergrowths, augite, hypersthene or bronzite and quartz. Hornblende is nearly always present to some extent. With the increase in this component the hypersthene diminishes. The rock varies rapidly in composition and structure. All the intrusions except the diabases and porphyries have been subjected to great pressure and have yielded gneisses.

[1] *Amer. Geologist*, xxvii (1901), p. 199.

[2] *18th Report State Geologist*, Albany, N. Y., 1900.

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